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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

In the Matter of

Amendment of Section 97.305 of the  
Commission's Rules to Limit Certain  
Types of Transmissions in Prescribed  
Portions of the Amateur VHF and UHF  
Bands

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RM-9673

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JUL 28 1999

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

To: The Chief, Public Safety and  
Private Wireless Division,  
Wireless Telecommunications Bureau

COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED

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### Certificate of Service

## SUMMARY

The American Radio Relay League, Incorporated (the League), the national non-profit association of amateur radio operators in the United States, submits its comments in response to the Petition for Rule Making (the Petition), filed on or about May 7, 1999 by the Central States VHF Society (CSVHFS). The Petition requests that the Commission modify its Part 97 rules governing the Amateur Radio Service so as to limit to narrowband emissions only those operating modes permitted in small portions of the 50, 144, 222 and 420 MHz amateur allocations, thus to protect from interference those narrowband, "weak-signal" communications conducted in the subject band segments.

CSVHFS has in good faith proposed regulatory changes intended to protect from interference the extremely valuable and important experiments and propagation research routinely conducted using narrowband modes in small portions of the VHF and lower UHF amateur allocations over long distances. Wideband emissions in fact can disrupt those experiments and research. However, the petition does not support the regulatory relief requested, as it does not establish the extent of the interference problem. Reliance on established voluntary band plans is an alternative that, with some Commission support, the League believes sufficient to address the concerns raised by CSVHFS. The Commission should acknowledge, however, that VHF and UHF operation in accordance with established band plans is "good amateur practice" and that the Commission will support compliance therewith as necessary to prevent interference in the weak signal subbands.

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**To: The Chief, Public Safety and  
Private Wireless Division,  
Wireless Telecommunications Bureau**

**COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED**

The American Radio Relay League, Incorporated (the League), the national non-profit association of amateur radio operators in the United States, by counsel and pursuant to Section 1.405(a) of the Commission's Rules [47 C.F.R. §1.405(a)], hereby respectfully submits its comments in response to the Petition for Rule Making (the Petition), filed on or about May 7, 1999 by the Central States VHF Society (CSVHFS). The Petition requests that the Commission modify its Part 97 rules governing the Amateur Radio Service so as to limit to narrowband emissions only those operating modes permitted in small portions of the 50, 144, 222 and 420 MHz amateur allocations, thus to protect from interference those narrowband, "weak-signal" communications conducted in the subject band segments. In response to the CSVHFS Petition, the League states as follows:

**I. Introduction**

1. CSVHFS' Petition seeks regulatory relief from the Commission to solve an unquantified problem of interference to VHF and UHF experimentation by amateurs using

narrowband, weak-signal emissions in portions of the VHF and lower UHF bands heavily used by amateurs. This interference according to the Petition, stems from use by other amateurs of FM and other wideband emission modes in those same band segments. The segments are reserved pursuant to voluntary band plans, and routinely used, for narrowband emissions only. As CSVHFS puts the matter:

CSVHFS views with alarm the continuing spread of wide band (FM voice and packet transmissions on the VHF amateur bands, particularly on the 2 meter band. If the type of weak signal operation in which our members, and many other amateurs engage is to continue; we believe that it must be protected from wide band emissions such as are increasingly popular on the VHF amateur bands - namely FM modulated voice or packet transmissions.

*Petition, at 1.*

2. The Petition notes that the modes commonly used in relatively small portions of the VHF and lower UHF amateur allocations for long-distance, weak-signal propagation research and experimentation are SSB voice and Morse telegraphy. Those modes, given the sensitive receivers and propagation characteristics utilized for the purpose, are incompatible with wideband modes in the same band segments. The initial premise of CSVHFS is that the sophisticated, long-distance VHF, UHF and microwave experimentation undertaken by amateurs represents a valuable contribution to the art of radio communications and requires protection from interference. CSVHFS reasons that the amateur High Frequency (HF) allocations are divided by regulation into subbands by bandwidth so as to prevent interference in the limited allocations used for worldwide communications from wideband emissions. Because narrowband emissions (i.e. SSB voice and Morse telegraphy) are used typically in portions of the VHF and lower UHF amateur bands, often over extremely long paths, the same regulatory treatment should be applied

to those segments as is applied to the HF bands.

3. Another premise of CSVHFS is that the present means of segregating narrowband, weak-signal emissions from wideband FM voice and data emissions in the VHF and UHF amateur bands, ARRL published, voluntary band plans, is not sufficient to prevent interference in the weak-signal segments. CSVHFS argues that those band plans are not adhered to on a voluntary basis to the extent necessary to protect weak-signal experimentation and research from interference. The result is that reception of narrowband signals over long paths is precluded on occasion.

4. Thus, CSVHFS asks that the Commission protect from interference the band segments between 50.1 - 50.3 MHz; 144.1 - 144.3 MHz, 222.0 - 222.15 MHz, and 431.8 - 432.5 MHz by restricting emissions in those segments to those permitted in the amateur allocations below 29.0 MHz, as set forth in Section 97.307(f) of the rules governing the Amateur Service<sup>1</sup>. It suggests further that the Commission permit data emissions between 50.0 - 50.1 MHz and 144.0 - 144.1 MHz at the same data transmission speeds as are permitted at 28.0 - 28.3 MHz.<sup>2 3</sup>

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<sup>1</sup> These include the following subsections:

§97.307(f)(1): No angle-modulated emission may have a modulation index greater than 1 at the highest modulation frequency.

§97.307(f)(2): No non-phone emission shall exceed the bandwidth of a communications quality phone emission of the same modulation type. The total bandwidth of an independent sideband emission (having B as the first symbol), or a multiplexed image and phone emission, shall not exceed that of a communications quality A3E emission.

<sup>2</sup> This would include the emission standard established at subsection 97.307(f)(4), which reads as follows:

Only a RTTY or data emission using a specified digital code listed in §97.309(a) of this part may be transmitted. The symbol rate must not exceed 1200 bauds, or

## **II. Protection of Narrowband, Weak-signal Amateur Communications in the VHF and UHF Allocations is an Important Goal**

5. The League is a supporter of the work of CSVHFS, and regularly publishes the Proceedings from its conferences. CSVHFS' members are among the most active and sophisticated experimenters the Amateur Service has to offer. The contributions of CSVHFS to developments in VHF, UHF and microwave hardware and the study of propagation phenomena in those bands have been numerous and valuable to modern telecommunications. Furthermore, the intent of CSVHFS' Petition, to protect the important course of experimentation in VHF, UHF and microwave phenomena from interference, is admirable. Indeed, the low signal strengths at the receivers in the segments sought to be protected by CSVHFS in typical amateur communications, given the long paths involved, necessitate the avoidance of co-channel wideband modes.

6. The Commission has, by its rules, taken certain regulatory steps to protect VHF and UHF narrowband weak-signal communications. For example, the Commission prohibits auxiliary and repeater operation in the VHF and UHF weak-signal subbands below 450 MHz and limits

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for frequency-shift keying, the frequency shift between mark and space must not exceed 1 kHz.

<sup>3</sup> It should be noted that the proposed Appendix to the CSVHFS Petition contains some apparently unintentional errors and omissions, with the result that the Appendix does not reflect the intent of CSVHFS. The League understands from the text of the Petition what CSVHFS wishes to accomplish from a regulatory perspective, but the proposed Section 97.305 would not accomplish the intended goal and would have other adverse consequences. For example, data and test emissions would be deleted from the segments 51.0-54 MHz; and MCW, RTTY, data and test emissions would be deleted from 144.3-148 MHz; these results clearly are not the intention of CSVHFS. The League does not support any regulatory change proposed by CSVHFS based on the instant petition, so a complete recitation of the errors in the proposed Appendix is not provided herein. If, however, the Commission should proceed further with the Petition, it should not do so based on the Appendix therein.

beacon operations to narrow segments of the weak-signal subbands.<sup>4</sup> However, there is a fine line between Commission regulation necessary to protect licensees against interference from incompatible emission modes, and the level of regulation which might stifle experimentation, and reduce flexibility in what is in essence an experimental radio service. The Commission, over time, has been asked repeatedly to make decisions concerning the Amateur Service which define that line. Normally, it has properly erred on the side of reliance on the self-regulatory character of the Amateur Service.<sup>5</sup> It has preserved flexibility in regulating emission types and characteristics. Some regulations in those categories are clearly necessary to protect users from incompatible operation. Restricting emissions in the HF bands, given the limited size of those allocations, the large number of regular users of the HF bands worldwide, and their worldwide propagation characteristics, is necessary at present in order to maximize efficient use thereof and to assure compatibility with international standards.

### **III. The Petition, As Submitted, Does Not Establish a Basis for Regulatory Relief**

8. The League's concern with the CSVHFS Petition is that there is not, within the four corners of the Petition a sufficient showing that additional regulation is necessary in order to protect amateur narrowband weak-signal communications at VHF and UHF. The League's

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<sup>4</sup> See, §§97.201, 97.203, and 97.205.

<sup>5</sup> The Commission has taken a more active role in regulating emissions in Amateur Service allocations in order to promote compatibility than have other countries. In Canada, for example, and in many other countries, there is no band segmentation by regulation or licensing. That is a task relegated to private sector voluntary band planning, and it appears to work well generally. The theory is that amateurs should be able to develop their own operating patterns by convention.



reading of the Petition reveals only the following conclusory statements:

"We are concerned that the experimentation necessary to continue to make these contributions is in jeopardy with the increasing encroachment of various kinds of wide band modes such as FM voice and packet into the small portions of the bands where weak signal work takes place."

*Petition, at 1.*

"CSVHFS views with alarm the continuing spread of wide band (FM voice and packet transmissions on the VHF amateur bands, particularly on the 2 meter band. If the type of weak signal operation, in which our members, and many other amateurs engage is to continue; we believe that it must be protected from wide band emissions..."

*Petition, at 1.*

"On too many occasions, reception of these narrow band emissions is severely hampered by the presence of wide band FM signals."

*Petition, at 2.*

9. In the League's experience, the number of complaints of such interference is not so substantial as to justify additional regulation. While it may be that the number of incidents of harmful interference to amateur narrowband, weak-signal communications from wideband modes in the band segments normally used for SSB and Morse telegraphy is higher than the number of complaints received by the League would indicate, the Petition does not quantify the problem at all. There is no means of determining from the Petition what the extent of such interference is at present. Unless the record contains a measure of the magnitude of the problem, it is impossible for the Commission to evaluate whether any need for regulatory relief exists at all.

#### **IV. An Alternative Means of Addressing CSVHFS' Intent is Provided Through the League's Band Plans**

10. The fundamental means by which the Amateur Radio Service fulfills the goals established for it by the Commission is cooperation of licensees in the use of shared frequency allocations with widely different communications modes. The Commission has broadly

acknowledged this cooperative effort in language which has remained essentially unchanged since it was introduced in the first post-war rewrite of the Commission's rules in 1946:

In all respects not specifically covered by FCC Rules each amateur station must be operated in accordance with good engineering and good amateur practice.

47 C.F.R. §97.101(a).

While necessarily couched in general terms, this residual rule complements the remainder of the Part 97 rules which define the specifics of the Amateur Radio Service. It provides that amateur operators must comply not only with the letter of the Rules, but with the self-regulatory characteristics of Amateur Radio as well.

11. Because the amateur bands are, by nature, shared bands — locally, nationally and internationally, the question of defining "good amateur practice" is not merely an academic exercise. Although the details of amateur operations can not, and should not, be subject to explicit regulation in an experimental radio service, the practicalities of sharing a significantly limited resource with long-distance propagation characteristics necessitates a certain level of cooperation among users in order to ensure fair and effective availability of the resource to all.

12. There are numerous circumstances in the Amateur Radio Service in which even strict compliance with Part 97 does not guarantee good operating practice by licensees — or the absence of interference between and among amateur stations. This is both as it should be, and as it must be. Utilization of many different operating modes, on shared frequencies, is facilitated by rules which only nominally regulate emission types and frequency band segments. The varied, and traditionally, rapidly changing nature of amateur communications and experimentation necessitates a good deal of regulatory flexibility in the Rules. Compatible sharing of limited

frequency bands among amateur licensees, on the other hand, is the order of the day, and the Commission has repeatedly noted that such cooperation must continue.<sup>6</sup>

13. Much of the order and efficiency found in the Amateur Service, therefore, is due not to the Commission's Rules which create the framework of the Service, but as well to the self-regulatory efforts of the licensees themselves, individually and in groups, for which the Amateur Service has a proud and continuing tradition.<sup>7</sup> The latter (band plans being principal among those efforts) provide the substance to the regulatory framework provided by the Commission in the Part 97 Rules. Given the substantial growth of the Amateur Service over time, and the increasing use of the VHF, UHF, and microwave allocations, the focus of the Amateur Service has properly been on the development of voluntary band plans for the cooperative sharing of the limited allocations in the Amateur Service, and the accommodation of all types of communications interests. Such is necessary to minimize inter-mode, geographic, and co-channel and adjacent channel same-mode conflicts. The Commission has relied on this voluntary band planning effort as the proper substitute for more detailed regulation of the Amateur Service. It has also

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<sup>6</sup> Section 97.101(b) of the Rules requires the cooperation of each station licensee and each control operator in the selection of transmitting "channels" and in making the most effective use of any station. This is obviously the concept behind the voluntary band plans developed in the Amateur Community: to provide a widely-recognized basis for cooperation in the selection of operating frequencies in shared bands, using widely varied emission modes.

<sup>7</sup> The Commission has stated, with respect to its deregulatory philosophy: "we continue to believe that deregulation is a sound idea. ... [A]mateurs should be in the forefront of technical advancement, and ... any attempt by the Commission to spur amateur experimentation will necessarily increase amateur responsibility". *Deregulation of Part 97 of the Commission's Rules regarding emissions authorized in the Amateur Radio Service*, 68 FCC.2d 1287, 1288 (1978).

monitored the development and success of voluntary band plans as spectrum management tools.<sup>8</sup>

14. Band planning has long been used as a means to accommodate the disparate needs of individual users and groups while minimizing interference to others. It is accomplished through a process in which representatives of all parties interested in using particular frequency bands for particular purposes coordinate those interests in a fair and open manner. The band planning effort is done at multiple, discrete levels, with varying degrees of success. The method, however, allows consideration of wide differences in propagation, international allocations, variations in emission mode preferences, and regional and local geographical issues. It also boasts the ability to accommodate rapid change in communications modes and techniques, a degree of flexibility virtually absent by definition from the Commission's regulatory processes. Given the alternatives, the Amateur Service is properly relied upon by the Commission in most instances to carry on any necessary band planning. Commission regulation of emissions and modes is reserved for

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<sup>8</sup> For example, in a proceeding dealing with regulation of complex system operation and expansion of repeater subbands, the Commission inquired about the sufficiency of amateur voluntary band planning efforts. It found, following notice and comment thereon, as follows:

In response to our inquiries concerning the adequacy of the current system of voluntary spectrum management and the necessity for the limitations on the effective radiated power of stations in repeater operation ..., we received many informative and helpful responses. These comments indicated, generally, a widespread dissatisfaction with the ERP limitations on repeater operation, as well as a belief that the Amateur Service's voluntary spectrum management system functions with considerable effectiveness in most instances.

*Deregulation of Part 97 of the Commission's Rules to simplify the licensing and operation of complex systems of stations and modify repeater subbands in the Amateur Radio Service*, 66 FCC.2d 207, 211-12 (1977).

those instances where necessary to insure fundamental compatibility, a situation not apparent in the instant matter.

15. The Petition herein, with respect to band plans, states only as follows:

Band plans, whether promulgated by a national association such as ARRL, or other groups, have not proven adequately successful in limiting these wide band modes from the band segments used for weak signal communication. This is why we ask that the Commission institute appropriate rule changes to more strongly protect the viability of weak signal communication on the VHF and UHF amateur bands.

It is not suggested that the League's band plans for the VHF and UHF bands provide a perfect solution for weak-signal enthusiasts, but in the League's experience there is a relatively high degree of compliance. With the advent of newcomers to the Service who, by virtue of their license class and due to mode popularity, focus on VHF and UHF FM amateur operation, there are bound to be those who have not learned amateur conventions. However, with but few exceptions, it would appear to the League that educational efforts are the most appropriate solution to the problem of non-compliance with voluntary band plans, and that regulatory limitations on emissions are not likely to be significantly more effective in any case.

**V. The Commission Should Acknowledge that VHF and UHF Operation in Accordance With League Band Plans Constitutes "Good Amateur Practice" and Support Compliance Therewith**

16. On April 3, 1998, the League filed a Request for Declaratory Ruling with the Private Wireless Division, asking for confirmation of that which a previous Chief, Private Radio Bureau had affirmatively stated in correspondence and which the Commission has clearly and consistently supported as policy: that voluntary band plans, adopted cooperatively in the Amateur Service in a fair and open manner and by consensus, should be supported and adhered to as an element of "good amateur practice" and spectrum efficiency. The League supported that request

at the time it was filed, and continues to support it now, though no action has been taken to date, other than to treat the Request as a rulemaking petition (RM-9259). The Commission should provide some compliance support for the band plans which are an integral part of the cooperative sharing of limited frequency allocations.

17. CSVHFS is reasonably apprehensive about interference from wideband FM and packet transmissions to weak signal communications, and the League shares that concern. However, it would be proper to rely on the self-regulatory abilities of the Amateur Service, as reflected in voluntary band plans, with the Commission's compliance support where such is necessary, rather than suffer the loss of flexibility that accompanies regulatory limitations in the Amateur Service Rules. All that would seem to be required from the Commission in order to address adequately the concern that CSVHFS has would be to affirm that VHF and UHF amateur operation in accordance with established band plans constitutes "good amateur practice" in accordance with Section 97.101 of the Commission's Rules, and that the Commission will support those band plans with compliance actions where interference occurs in those segments on a repeated basis. CSVHFS would surely find their concerns adequately addressed if, for example, instances of repeated interference from wideband emissions in the band segments reserved by accepted band plan for weak signal, narrowband operation are addressed by the Commission as a compliance matter.

## **VI. Conclusions**

18. CSVHFS has in good faith proposed regulatory changes intended to protect from interference the extremely valuable and important experiments and propagation research routinely conducted using narrowband modes in small portions of the VHF and lower UHF amateur

allocations over long distances. Wideband emissions in fact can disrupt those experiments and research. However, the petition does not support the regulatory relief requested, as it does not establish the extent of the interference problem. Reliance on established voluntary band plans is an alternative that, with some Commission support, the League believes sufficient to address the concerns raised by CSVHFS. The Commission should acknowledge, however, that VHF and UHF operation in accordance with established band plans is "good amateur practice" and that the Commission will support compliance therewith as necessary to prevent interference in the weak signal subbands.

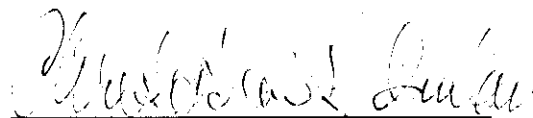
Therefore, the foregoing considered, the American Radio Relay League, Incorporated respectfully requests that this proceeding be acted upon by the Commission in accordance with these comments.

Respectfully submitted,

**THE AMERICAN RADIO RELAY LEAGUE, INC.**

225 Main Street  
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By:



Christopher D. Imlay  
Its General Counsel

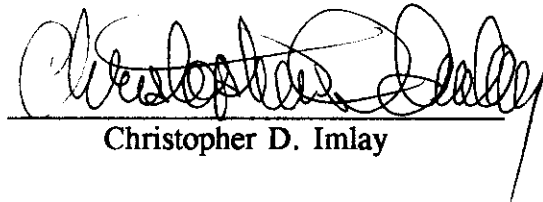
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July 28, 1999

## CERTIFICATE OF SERVICE

I, Christopher D. Imlay, do hereby certify under penalty of perjury that I caused to be served, this 28th day of July, 1999, via United States Mail, postage prepaid, a copy of the "COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED" on the following:

Mr. William A. Tynan  
Chairman, Government Liaison Committee  
Central States VHF Society  
HCR5 Box 574-336  
Kerrville, Texas 78028



Christopher D. Imlay